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SCIENCE

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FRIDAY, APRIL 30, 1897.

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THE NATIONAL ACADEMY OF SCIENCES.

THE annual meeting of the National Academy of Sciences in Washington began on Tuesday, the 20th inst., and continued through the following Wednesday and Thursday.

The meeting was remarkable for the unusually small number of scientific papers presented and the unusually large number of obituary notices and biographical memoirs read.

In the order of their presentation the scientific papers were: 'An Experimental Study of the Influence of Environment upon the Biological Processes of the Various Members of the Colon Group of Bacilli,' by Adelaide Ward Peckham (presented by Dr. Billings); 'On the Energy involved in Recent Earthquakes,' by Dr. Mendenhall, who, with Professor A. S. Kimball, presented a second paper on 'A Ring Pendulum for Absolute Determinations of Gravity,' the first being discussed at some length by Professors Agassiz, Rowland, Gilbert, Hastings and Mendenhall; 'On the Variation of Latitude,' by Dr. S. C. Chandler; 'On the Position of the Tarsiids and Relationship to the Phylogeny of Man,' by Dr. Theodore Gill; 'A New Harmonic Analyzer,' by Professors Michelson and S. W. Stratton; 'A report on the Variation of Latitude and Constant of Aberration from Observations at Columbia University,' the joint work of Professors Rees and Jacoby and Dr. Davis, presented

by Dr. S. C. Chandler; 'On Recent Borings in Coral Reefs,' by Professor Agassiz; and 'Notes on Experiments upon the Röntgen Rays,' by Professor Arthur W. Wright.

Biographical memoirs were read as follows: Of Dr. G. Brown Goode, by Professor Langley; of General Thos. L. Casey, by General Abbott; of Dr. Brown-Sequard, by Dr. Bowditch; of Professor H. A. Newton, prepared by Professor J. W. Gibbs and read by Professor A. W. Wright; and of Professor George H. Cook, by Mr. G. K. Gilbert.

Formal announcement was made of the death, since the last meeting of the Academy, of four of its members, including several of those most eminent and most widely known, namely, Dr. B. A. Gould, General F. A. Walker, Professor E. D. Cope and Professor M. Carey Lea.

Four new members were elected: Professor Morley, of Cleveland; Dr. Minot, of Boston; Dr. Dall, of Washington, and Professor Gooch, of New Haven.

On Wednesday Professor Asaph Hall was elected as Vice-President, to succeed General Francis A. Walker, who filled that office at the time of his death. Professor Remsen was elected to succeed Professor Hall as Home Secretary, and Professor A. Graham Bell was chosen as Treasurer of the Academy, to succeed Dr. Billings, who resigned that office, owing to his removal to New York.

Sir Archibald Geikie, Director of the Geological Survey of Great Britain, who is giving a course of lectures at the Johns Hopkins University, was the guest of the Academy at luncheon on Thursday, and was formally presented to the Academy at the session immediately following.

The plan agreed upon a year ago, of having the reading of papers begin at 2 p. m. and not attempting scientific work in the morning, was followed this year and will be productive of good results as soon as it is

generally understood. It may be assumed that the Academy is indifferent as to whether it has an audience or not, and it is becoming quite evident that those who do not belong to it are pretty much of the same mind; but it is none the less a fact that there are always many people in Washington at the time of its annual meeting, including many residents and many temporary visitors, who would be glad to listen to the papers and discussions, and as long as the so-called 'scientific sessions' are avowedly open to the public, an invitation to attend being in some sense offered, some consideration ought to be given to those who often put themselves to much trouble to be present. The new plan of having a definite hour for beginning the 'scientific session' is an important step in this direction, and it ought to be followed by a rigid adherence to the order of the printed program in the presentation of papers. Often a member will invite those specially interested to be present at the reading of a particular paper, only to be disappointed by a change in the order to accommodate one whose title is lower down on the list. The Council has full power, it is assumed, to arrange the list as it deems best, but when once printed it should be adhered to, certainly, unless departure from it is by common consent.

The Academy is not only indifferent to the presence or absence of listeners, but it is probably equally indifferent to criticism from the outside; but having already ventured a word of critical comment, it will do no harm to add another and remark that if the formal introduction of a distinguished foreigner is an event likely to occur again it would be well to have some understanding among the few members who may accidentally be present at the time as to whether they are or are not expected to share in any way in the bestowal of this pleasant compliment.

On such occasions, and, indeed, on all occasions when the Academy is in session for other than the transaction of its private business, the presence of a goodly number of its members would be desirable, and it ought not to forget that it is a *National Academy*, chartered by the government; therefore to a degree the creature of the people and their representatives in the highest domain of scientific investigation. They do not wish to direct or restrict its operations, but are content to see that they are controlled by a membership which includes the ablest specialists which the country produces, selected from time to time in accordance with a standard with which they have no particular quarrel. On the other hand, the Academy may well give great consideration to its obligations to such an enormous and unusually intelligent constituency, whose character and dignity, from the scientific standpoint, it is delegated to represent.

The November meeting will be this year in Boston, beginning on Tuesday, the sixteenth of that month.

AN ESSAY ON THE CLASSIFICATION OF INSECTS.

Of late years the phylogeny of insects has attracted considerable attention from students, and much light has been thrown upon the subject by the researches made. One of the most notable facts has been the breaking away from the old Linnæan orders and the substitution of a number of more compact assemblages for some of the almost indefinable aggregations found in the old classification. New characters have been sought, not only in structures visible externally, but even in internal anatomical peculiarities. The subject is a very interesting one, which the teacher is of necessity compelled to study more or less, and which I was led to examine more particularly when the question recently came up as to the adop-

tion of some system in a general work on 'Economic Entomology,' which has since been published. The conclusions reached by myself, while in general they agree with the latest published results, have been arrived at by a somewhat different method, and my ideas concerning the development of the orders are somewhat unlike those heretofore accepted. I have tried to adhere logically to a scheme of easy development, and have made use of some characters not heretofore particularly noted. Leaving aside for the present all questions as to the origin of the class 'Insecta' and as to its ancestors, I start from a developed hexapod—an archetypal Thysanuran with six, jointed legs; without wings; with or without abdominal appendages other than functional legs; with no eyes or with ocelli only; with a head not greatly differing in size or form from the body segments; with the thoracic segments equally developed and not greatly differing except in appendages from those of the abdomen. This creature lived in moist places, perhaps partially in the water, and had the tracheal system feebly or not at all developed; absorbing oxygen chiefly through the skin and tending, perhaps, as much in the direction of an aquatic as a terrestrial life. It had no distinct metamorphosis, was oviparous, bisexed, changing little in appearance from the time it emerged from the egg until it was adult and capable of reproduction. The mouth structures were generalized, feebly developed; but with at least three, and possibly four, pairs of composite structures corresponding to mandibles, maxillæ and labium of our existing insects. The possible fourth pair may have been an endo-labium and, perhaps, the labrum with its attached epipharynx may have required a fifth pair of structures. Most essential of all was an inherent power of variation and adaptation, and probably, as with some of our present Thysanurans, reproduction was